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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,727	11/26/2003	Fernando C. M. Martins	042390.P16775	9793

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EXAMINER	
WAI, ERIC CHARLES	

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,727	MARTINS ET AL.	
	Examiner	Art Unit	
	ERIC C. WAI	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7-13,17-25 and 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7-13,17-25 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-2, 7-13, 17-25, and 27 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 7-13, 17-25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naik et al. (US PG Pub No. US 2006/0294238 A1) in view of Bulson et al. (US PG Pub No. US 2005/0060704 A1).

4. Regarding claim 1, Naik teaches a method of sharing resources on a grid network, comprising:

configuring a host to include a grid virtual machine ([0074] lines 10-15, wherein a host computer includes a virtual machine and operating system that can support grid applications), where the grid virtual machine is isolated from the second virtual machine ([0021]);

allocating base resources on the host to the grid virtual machine (it is inherent that resources be allocated to the grid VM running on the host);

allocating supplemental resources to the grid virtual machine according to predefined policies ([0024], [0048] and [0055], wherein a hierarchy of resource managers assists in managing resources);

enabling the grid virtual machine to execute a grid application in conjunction with other resources on the grid network ([0074] line 14, wherein it is inherent that the application is executed); and

dynamically balancing the load on the host while the grid application is executing ([0048-055], wherein the resource manager can predict and forecast the load on the resources).

5. Naik does not explicitly teach a second virtual machine and that the second virtual machine is configured to run applications other than the grid application.

6. Bulson teaches the use of virtual machines in a grid environment ([0018]). Bulson teaches the use of multiple virtual machines in each node of the grid environment where each virtual machine is capable of functioning as a separate system. As such, each virtual machine can be independently host an operating system and operate with different programs ([0023]).

7. It would have been obvious to one of ordinary skill in the art that a second virtual machine running applications other than the grid application could exist on the system. One would be motivated by the desire to isolate the operation of another virtual machine to perform other services as indicated by Bulson ([0023]) and Naik ([0021]).

8. Regarding claim 2, Naik teaches that allocating the resources further comprises a virtual machine manager allocating at least the portion of the resources ([0074] lines 15-16, wherein it is well known in the art that a VMM assists in mapping resources).

9. Regarding claim 7, Naik teaches:

retrieving predefined policies for the grid virtual machine ([0077]); and

monitoring the grid virtual machine to determine if the grid virtual machine violates the predefined policies ([0077], wherein the policy handler enforces the policies).

10. Regarding claim 8, Naik teaches that the predefined policies include predefined resource thresholds for the grid virtual machine ([0078]).

11. Regarding claim 9, Naik teaches that a resource manager takes appropriate action if the grid virtual machine violates at least one of the predefined policies ([0078]).

12. Regarding claim 10, Naik teaches that the resource manager taking action further comprises at least one of the resource manager automatically limiting resources available to the grid virtual machine ([0078]), and the resource manager notifying a user that the grid virtual machine violated at least one of the predefined policies.

13. Regarding claims 11-13, and 17-20, they are the article claims of claims 1-2, and 7-10 above. Therefore, they are rejected for the same reasons as claims 1-4, and 7-10 above.

14. Regarding claims 21-24, they are the system claims of claims 1-2, 7, and 9-10 above. Therefore, they are rejected for the same reasons as claims 1-2, 7, and 9-10 above.

15. Regarding claim 25, Naik teaches a grid network, comprising:

a first host capable of running a first grid virtual machine and a second virtual machine ([0074]), the second virtual machine isolated from the first grid virtual machine ([0021], wherein each virtual machine is isolated from each other), the first host additionally running a first resource manager to allocate supplemental resources to the first grid virtual machine ([0024], [0048] and [0055], wherein a hierarchy of resource managers assists in managing resources).

16. Naik does not explicitly teach a second host coupled to the first host, the second host capable of running a second grid virtual machine and a third virtual machine, the first grid virtual machine and the second grid virtual machine capable of simultaneously executing a grid application, the second host additionally running a second resource manager to allocate supplemental resources to the third grid virtual machine.

17. However, Naik teaches the concept of grid computing wherein it is inherent that multiple host computers exist in a loosely coupled fashion to perform a common task

([0007]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have a second host coupled to the first host with similar capabilities to execute a common application. One would be motivated by the desire to pool together many computing resources to perform a large task ([0006]).

18. Naik does not explicitly teach that the second virtual machine is configured to run applications other than the grid application and that the first host additionally running a first virtual machine manager to allocate base resources to the first grid virtual machine and the second virtual machine,

19. Bulson teaches the use of virtual machines in a grid environment ([0018]). Bulson teaches the use of multiple virtual machines in each node of the grid environment where each virtual machine is capable of functioning as a separate system. As such, each virtual machine can be independently host an operating system and operate with different programs ([0023]). Bulson further teaches the use of a manager virtual machine ([0024]).

20. It would have been obvious to one of ordinary skill in the art that a second virtual machine running applications other than the grid application could exist on the system. One would be motivated by the desire to isolate the operation of another virtual machine to perform other services as indicated by Bulson ([0023]) and Naik ([0021]).

21. Regarding claim 27, Naik teaches that the first resource manager and the second resource manager are additionally capable of retrieving policies for the first grid virtual machine and the second grid virtual machine respectively ([0077]).

Response to Arguments

22. Applicant's arguments filed 04/21/2009 have been fully considered but they are not persuasive.

23. Regarding claims 1, 11, 21 and 25, Aplplicant argues on pg 8 of Remarks: "Bulson thus utilizes temporary virtual machines (within or out of grid networks) to service requests. It describes a scheme whereby a virtual machine manager (VMM) and at least one VM ("refered to as "the job virtual machine") are utilized to facilitate interoperability (Bulson, Paragraph 18). Nothing in Bulson teaches or suggests the claimed elements of creating a grid virtual machine and allocating first base resources and then supplemental resources to the grid virtual machine, while dynamically balancing the load on the host platform. Bulson also does not teach or suggest running grid and non-grid applications on a single host platform. Bulson simply contemplates a scheme whereby a virtual machine is produced on-demand to address a specific grid request. Similarly, Naik makes no mention of running grid and non-grid applications on a single platform."

24. Examiner disagrees. Bulson describes the use of virtual machines to process requests wherein each virtual machine functions as a separate system and can operate with different programs ([0023]). Bulson further describes the use of a manager virtual machine and job virtual machines ([0024]). It is clear from Bulson's description that the job virtual machine is used to process requests (i.e. grid related application) and the manager virtual machine is used to manage the job virtual machines (i.e. non-grid related or system management application). Therefore, Bulson does read upon the claimed invention.

25. Furthermore, Naik implicitly teaches the use of multiple virtual machines that are directed towards grid and non-grid applications. Naik details a PC-based grid infrastructure previously used in the prior art ([0020]). Naik teaches that the DCGrid Platform allowed for isolating grid applications from the native applications through some undisclosed secure technology ([0020] lines 6-9). In [0021], Naik goes on to detail the use of virtual machines to preserve the integrity of computer systems. The use of virtual machines allows users to run multiplatform applications and services in different virtual machines in a straightforward manner ([0021] lines 5-8). Naik has clearly indicated the knowledge available to one of ordinary skill in the art at the time of the invention. Therefore, the teaching of platform isolation in a computer system using a plurality virtual machines wherein one virtual machine is dedicated to running grid applications and the other virtual machines are used for other applications naturally flows from the teachings of Naik.

26. Regarding claims 1, 11, 21 and 25, Applicant argues on pg 8 of Remarks:

"Applicants therefore respectfully submit that both these references fail to teach at least one critical element of the invention. The use of virtual machines to run grid and non-grid applications on a single host facilitates the use of devices that may otherwise not be available to the grid. Unlike Naik and Bulson, the present invention addresses the inherent risks in a grid network. The scheme articulated herein (and claimed herein) address both a VMM managing resources for the platform as a whole, while a resource manager monitors the activity in the grid VM and supplements resources and/or enforce policies on the grid VM."

27. Examiner disagrees for the reasons argued above. Furthermore, Naik teaches the invention as claimed including both a VMM managing resources for the platform as a whole (Fig 3, component 155), and a resource manager monitors the activity in the grid VM and supplements resources and/or enforce policies on the grid VM (Fig 1 component 300, 301, 400; Paragraph [0048]).

Conclusion

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012. The examiner can normally be reached on Mon-Thurs, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195

/Eric C Wai/
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